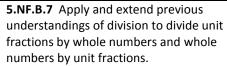
Multiple Groups Problems and Iowa Core Mathematics

Complete column 2 for each standard. This page does not repeat the standards listed on "Equal Groups Problems and Iowa Core Mathematics."

		Explanation
Iowa Core Mathematics Standard		What do children learn about this standard by solving Multiple Group
		Problems? Think about the evidence you might see in students' work.
4.NF.B.3abc Understand a fraction <i>a/b</i> with		
a >	1 as a sum of fractions 1/b.	
a.	Understand addition and subtraction of	
	fractions as joining and separating parts	
	referring to the same whole.	
b.	Decompose a fraction into a sum of	
	fractions with the same denominator in	
	more than one way, recording each	
	decomposition by an equation. Justify	
	decompositions, e.g., by using a visual	
	fraction model. Examples: 3/8 = 1/8 +	
	1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1	
	+ 1/8 = 8/8 + 8/8 + 1/8.	
с.	Add and subtract mixed numbers with	
	like denominators, e.g., by replacing	
	each mixed number with an equivalent	
	fraction, and/or by using properties of	
	operations and the relationship	
	between addition and subtraction.	
4.N	IF.B.4abc Apply and extend previous	
understandings of multiplication to multiply		
	raction by a whole number.	
a.	Understand a fraction a/b as a multiple	
	of 1/b. For example, use a visual fraction	
	model to represent 5/4 as the product 5	
	\times (1/4), recording the conclusion by the	
	equation $5/4 = 5 \times (1/4)$.	
b.	Understand a multiple of a/b as a	
	multiple of 1/b, and use this	
	understanding to multiply a fraction by	
	a whole number. For example, use a	
	visual fraction model to express 3 ×	
	$(2/5)$ as $6 \times (1/5)$, recognizing this	
	product as $6/5$. (In general, $n \times (a/b) = (a \times a)/b$.)	
_	(n × a)/b.)	
C.	Solve word problems involving	
	multiplication of a fraction by a whole	
	number, e.g., by using visual fraction	
	models and equations to represent the	
	problem. For example, if each person at	
	a party will eat 3/8 of a pound of roast	
	beef, and there will be 5 people at the	
	party, how many pounds of roast beef	
	will be needed? Between what two	
	whole numbers does your answer lie?	

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- a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.
- b. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.
- c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?

6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for $(2/3) \div$ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because 3/4 of 8/9 is 2/3. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?